



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/882,760

06/15/2001

Shuo-Yen Robert Li

Li7

1794

570

7590

04/20/2006

AKIN GUMP STRAUSS HAUER & FELD L.L.P.
ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103

EXAMINER

LEE, ANDREW CHUNG CHEUNG

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/882,760

Applicant(s)

LI ET AL.

Examiner

Andrew C. Lee

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 11 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9, 12, 13, 15, 16, 18, 20-22 and 24 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 17 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 12, 21, 24, 2, 13, 4, 15, 22, 5, 16, 9, 20 are rejected under 35 U.S.C. 102(e) as being anticipated by McMillen (US 4623996).

Regarding claims 1, 12, 21, 24, McMillen discloses the limitation of an MxN packet switch for switching M input packets arriving in each of a sequence of frame times to N output ports (Fig. 1, recited elements “a plurality of input ports 21’ as M input; and “a plurality of output ports 25” as N output ports; column 5, lines 35 – 59), the switch comprising an input module (Fig. 1, recited elements “a plurality of input ports 21’ as input module), having M inputs and B outputs, $B > M$, for switching the M input packets to M of the B outputs to produce M switched packets during each of the frame times (recited “input ports 21” as M inputs, and queue selectors 22 has a plurality of outputs” as B output; column 5, lines 37 – 43), a packet buffer including B registers, coupled to the input module, for storing the M switched packets into M available registers during each of the frame times to produce M stored packets (recited “queue selector 21 having a plurality of outputs individually coupled to separate queues of a corresponding queue set” as buffer including B registers, coupled to the input module; column 5,

Art Unit: 2616

lines 32 – 43), and an output module (“a plurality of output ports 25” as N output ports; column 5, lines 35 – 59), having B inputs and N outputs coupled to the packet buffer (Fig. 1, recited “a plurality of output ports” as N outputs, and “each of the output arbitrator has a plurality of inputs” as B inputs; column 5, lines 32 – 37), for transferring up to N packets from occupied registers in each of the frame times to the output ports based upon destination addresses contained within each of the stored packets (column 5, lines 48 – 59).

Regarding claims 2, 13, McMillen discloses the limitation of the packet switch as recited in claim 1 wherein the input module is an MxB crossbar switch (Fig 1, Fig. 1, recited elements “a plurality of input ports 21” as M input, and queue selectors 22 has a plurality of outputs” as B output ; column 5, lines 35 – 47).

Regarding claims 4, 15, 22, McMillen discloses the limitation of the packet switch as recited in claimed further including queues and their identifiers to store the destination addresses (recited “ routing tag signal” as destination address; column 6, lines 56 – 64) and wherein the output module transfers N_1 packets from the occupied registers in each of the frame times to N_2 output ports indicated by identifiers of the queues, $N_1 \leq N_2 \leq N$ (column 7, lines 6 – 8).

Regarding claims 5, 16, McMillen discloses the limitation of the packet switch as recited in claimed further including a register selector (recited “queue selector” as register selector) for assigning the M of the B registers during each of the frame times to generate M assigned registers (Fig. 2, column 6, lines 44 – 49).

Regarding claims 9, 20, McMillen discloses the limitation of the packet switch as recited in claimed wherein each of the B registers is a circular shift register (recited “round robin priority scheme” as a circular shift register; column 7, lines 16 – 17).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4, 7, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McMillen (US 4623996) in view of Holden (US 5583861).

Regarding claims 3, 14, McMillen discloses the limitation of an MxN packet switch for switching M input packets arriving in each of a sequence of frame times to N output ports (Fig. 1, recited elements “a plurality of input ports 21” as M input; and “a plurality of output ports 25” as N output ports; column 5, lines 35 – 59), McMillen does not disclose expressly the packet switch as recited in claimed wherein the packet buffer is a one-stop shared buffer memory. Holden discloses the limitation of the packet switch as recited in claimed wherein the packet buffer is a one-stop shared buffer memory (recited “a shared pool of memory” as buffer is a one-stop shared buffer memory; column 2, line 15 – 15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify McMillen to include the packet switch as recited in claimed wherein the packet buffer is a one-stop shared buffer memory such as that taught by Holden in order to optimally use available memory for queueing and buffering data packets at high-traffic crosspoints without slowing switching operations (as suggested by Holden, see column 2, lines 2 – 4).

Regarding claims 7, 18, McMillen discloses the limitation of the packet switch as recited in claimed further including N queues for storing the addresses of the assigned registers in each

Art Unit: 2616

of the frame times as transmitted to the N queues based upon destination information in the header information of the packets (column 6, lines 48 – 59), but not from the M header hoppers. Holden discloses the limitation of header register set (recited header register set” as header hoppers, see Fig. 6, element 153, column 6, lines 49 – 56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify McMillento to include the header hoppers such as that taught by Holden in order to optimally uses available memory for queueing and buffering data packets at high-traffic crosspoints without slowing switching operations (as suggested by Holden, see column 2, lines 2 – 4).

Allowable Subject Matter

5. Claims 10, 11, 23 are allowed over prior art.

Claims 6, 17, 8, 19, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed on 1/17/2006 with respect to claims 1 – 24 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2616

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ACL

April 14, 2006


Ajit Patel
Primary Examiner